

## **DRAFT ANTIDEGRADATION IMPLEMENTATION PROCEDURES**

**August, 2009**

### **I. INTRODUCTION**

Federal regulations require all states to have an antidegradation policy and to identify the methods for implementing the policy. 40 C.F.R. §131.12. Louisiana's Antidegradation Policy (Policy) and Implementation Plan (Plan) are contained in the Environmental Regulatory Code. See LAC 33:IX.1109.A.; LAC 33 IX.1119. The Policy and Plan provide the basis for the protection of state waters from activities that could cause degradation of the water quality and impairment of the existing and designated uses. The Plan specifies that the procedures for implementation are described in several documents of the Water Quality Management Plan, specifically the Water Quality Standards, the Integrated Report and the Continuing Planning Process (CPP). See LAC 33:IX.1119.B.1. This document develops specific implementation procedures to support the Policy and Plan and will be included in the CPP.

### **II. OVERVIEW OF THE ANTIDEGRADATION REVIEW PROCESS**

The Department will conduct an antidegradation review (note: this is not the same as a Tier 2 review) for any proposed new or increased discharge. The review will consider both the single proposed discharge and the cumulative effects of multiple dischargers and will be conducted using a combination of "waterbody-by-waterbody" and "parameter-by-parameter" approaches (waterbody-parameter approach). A waterbody-by-waterbody approach will be utilized for conventional pollutants and a parameter-by-parameter approach will be utilized for toxic pollutants. Both approaches are supported by existing EPA Region VIII guidance (EPA 1993). Conventional pollutants and toxic pollutants are defined in the Environmental Regulatory Code. See LAC 33:IX.107. Water bodies will be reevaluated as needed or at least once every four years. This timeframe is consistent LDEQ's ambient water quality monitoring program where all sites are monitored on a four-year rotating schedule. Water bodies may also need to be reevaluated after promulgation of new or revised criteria.

Much of the antidegradation review for a point source discharge will occur during the permitting or Water Quality Certification process. Pollutants of concern may be determined through utilization of EPA promulgated effluent guidelines for

specified categories of point source dischargers, by evaluation of effluent limitations and requirements in existing permits for similar dischargers, or through established procedures, guidance or policy. Documentation of the antidegradation review will be placed in the Fact Sheet or Statement of Basis prepared for the proposed new or expanding discharge permit.

Antidegradation reviews are initiated by the submittal of a request for preliminary determination or an LDEQ/EPA permit application. It is important that the Department be notified early in the process about the type and size of the proposed discharge, location of the discharge and effluent characteristics. Early notification will ensure that the information collection process begins well before the applicant needs a discharge permit or begins to conduct planning activities, design facilities or proceeds with project construction. In cases where the applicant intends to collect water quality data in preparation for an antidegradation review, the Department recommends that the applicant meet with the Department in a pre-application meeting at least one-year prior to the anticipated date of discharge.

### III. PROCEDURES FOR REVIEW

#### ***A. TIER 1***

Tier 1 protection establishes the minimum water quality standard and requires that existing instream water uses and the level of water quality necessary to protect the existing uses are to be maintained and protected [ 40 CFR 131.12(a)(1)]. The Department will evaluate all available ambient data collected within the most recent 10 years to determine if a water body has water quality that supports the designated uses. LDEQ will address pollutants using pre-total maximum daily load (TMDL) permitting protocols<sup>1</sup>, an EPA approved TMDL Study and implementation schedule, and Volume 3 of the Water Quality Management Plan. A water body shall be established as meeting its uses, and subject to Tier 1 protection if the Department determines that the water body does not qualify for Tier 2 protection (See Section B). Water bodies that are designated as man-made water bodies and/or have a designated use of “Limited Aquatic Life” are considered Tier 1 waters.

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<sup>1</sup> TMDL permitting protocols include those described in LDEQ Standard Operating Procedures (SOPs), Quality Assurance Project Plans (QAPPs), and the Water Quality Management Plan.

## **B. TIER 2**

Tier 2 protection applies when the quality of the waters exceed levels (or have higher levels) necessary to support propagation of fish, shellfish, and wildlife and recreation in an on the water. 40 CFR §131.12(a)(2). Tier 2 protection applies to water bodies identified in Appendix B of this document. The following criteria will be used to determine if a water body requires Tier 2 protection:

1. *Reference Sites* – The Department has identified reference water bodies (i.e. least-impacted water bodies) for the purposes of refining or developing water quality standards. Criteria for the selection of reference waters bodies are described in *Development of Dissolved Oxygen (DO) Criteria and Assessment Protocols to Support Fish and Wildlife Propagation in Louisiana Waters Based on Ecological Regions (Ecoregions) and Water Body Types* (DEQ 2009). The Department will consider natural lakes and streams identified as reference water bodies as Tier 2 waters as long as they remain in a least-impacted state. Reference water bodies do not have to meet the data requirement described in III.B.2 to be considered as Tier 2; as they have already been evaluated to meet reference site selection criteria and have been selected to refine or develop water quality criteria. Therefore, the comparison procedure described in III.B.2 between historical data and criteria may not be appropriate or accurate.
2. *Existing Water Quality Data*- For a water body<sup>2</sup> to qualify for Tier 2 protection, 90 percent of the ambient water quality data must be better than the criteria. The Department will evaluate all ambient water quality data collected within the most recent 10 years to determine if a water body has water quality that is consistently better than necessary to support the designated uses. Water quality data collected by other state and federal agencies and academic institutions will also be considered if such data is collected and qualified using methods comparable to those

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<sup>2</sup> Water body NOT designated as a reference site.

described in LDEQ's *Quality Assurance Project Plan for the Ambient Water Quality Network (QAPP\_1004)*<sup>3</sup>.

3. *Water Body Classification and Use* – Water bodies that are designated as man-made, intermittent, effluent-dominated streams, or are considered transportation or industrial corridors will not be considered for Tier 2 protection.
  - a. Effluent-dominated stream status can be demonstrated based on flow data, permit discharge monitoring reports (DMRs), discharge data, TMDLs, and wasteload allocation models.
  - b. Intermittent streams, made-made water bodies, and other water bodies that are designated with a use of “Limited Aquatic Life” are described in LAC 33: IX, Chapter 11.
  - c. The USACE Navigation Data Center will be utilized to determine waterways that are used as transportation and industrial corridors.

An example of a Tier 2 determination based upon the ambient data is included as Appendix A of this document. Water bodies that will be subject to Tier 2 protection are listed in Appendix B of this document. Unless otherwise described in Appendix B, Tier 2 designations will apply to the named water bod(ies) within a subsegment. “Named water bodies” refers to the water bodies described in Table 3 of LAC 33:IX, Chapter 11. Any proposed discharge to a tributary, or water body not identified in Table 3 will be evaluated on a case by case basis. Typically, adequate ambient water quality data is available only on the named water body identified in the water quality standards and Tier 2 classifications will apply to the named water body in Table 3 of LAC 33: IX, Chapter 11. Under no circumstances will a discharge be allowed in an unnamed water body (i.e. not listed in Table 3) that will violate water quality standards in

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<sup>3</sup> Ambient data should be for sample sites located on the receiving water body. Data or information must be reviewed by LDEQ for scientific merit and accuracy. An individual responsible for the quality and accuracy of any information or data submitted must attest to that accuracy by signing a certification form (to be provided or available via LDEQ website). LDEQ will determine the ultimate suitability for inclusion of all data and information submitted.

the nearest, named (i.e. listed in Table 3) downstream water body. Tier 2 determinations for unnamed water bodies will be made based on<sup>4</sup>:

1. Availability of existing water chemistry and flow data
2. Tier designation for the nearest downstream named water body
3. Type and size of the proposed discharge
4. Land use information and presence of other sources

In some circumstances, the Department may require permit applicants to submit additional data to make this determination. As Tier 2 waters are identified, they will be added to Appendix B of this document.

Additionally, the Department will conduct a Tier 2 review when:

1. the proposed discharge includes organic toxic pollutants, pesticides, or measurable amounts of metals; and
2. Ninety percent of all data collected in reference to the above listed pollutants are better than the criteria listed in Table 1 of LAC 33: IX, Chapter 11.

For general permits, the Department will conduct a Tier 2 review when a master general permit is reissued. The Department has discretion to remove an individual discharge from coverage under a general permit.

### **Tier 2 Review - Analysis of Social and Economic Benefits**

Under certain conditions, degradation is allowed in waters that exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water. 40 C.F.R. §131.12.a(2). If it is determined that a discharge will result in significant degradation of a Tier 2 waterbody, the applicant will be required to submit information for a Tier 2 Review. The Department will conduct the review make a decision to allow or prohibit the discharge. *Significant degradation* is defined as a measurable change in the ambient water quality (i.e.

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<sup>4</sup> Tier 2 determination for unnamed water bodies is also based in part on the document entitled, *EPA Region VIII Guidance: Antidegradation Implementation* (1993).

after allowing of mixing in accordance with LAC 33:IX.1115.C<sup>5</sup>). Measurable changes include:

- 1) Temperature increase of 0.3° C or greater
- 2) Dissolved oxygen decrease of 0.2 mg/L or greater
- 3) Bacteria level increase of 2 cfu/100 mL or greater
- 4) Turbidity increase of 0.5 NTU or greater
- 5) Any detectable increase in the concentration of a toxic or radioactive substance

When information available to the Department is not sufficient to make a determination regarding the social and economic benefits or environmental impacts associated with the proposed activity, the Department may request that the applicant submit additional information to support a determination. An example Tier 2 Review is in Appendix C.

### **Components of a Tier 2 Review**

1. The availability of discharge alternatives must be documented, including no discharge, water reuse or recycling, land application, discharge to an alternate water body, the use of new and innovative pollution prevention or reduction technologies, and connecting to existing treatment facilities. For small dischargers, connecting to an existing facility or land application are the preferable alternatives. A Tier 2 review must answer the following questions:

- a. What, if any, alternative control strategies would result in zero discharge?
- b. What alternative control strategies would decrease the environmental impact of the discharge?
- c. Could the discharge be directed to another waterbody?
- d. Could the discharge be tied into an existing facility?

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<sup>5</sup> Mixing zones are described in LAC 33:IX §1115 and in the LDEQ document entitled, *Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards Water Quality Management Plan Volume 3, Version 6* (April 16, 2008).

- e. Have seasonal or controlled (i.e., non-continuous) discharges been considered?

If no alternatives to discharge are viable, a thorough explanation must be provided by the applicant.

2. The discharge's potential to affect existing or designated uses or to interfere with CWA Section 101(a)(2) goals - water quality which provides for the "protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water". For discharges that will cause habitat alteration (e.g. removal of riparian vegetation, altering or impairing the natural flow of a stream), alternatives to degradation should be explored and explained by the applicant. This includes, but is not limited to, maintaining or enhancing buffer zones, bridging a stream rather than using a culvert, reseeding, or other Best Management Practices (BMPs).

3. The economic and social impact in the area in which the water body is located and the surrounding areas. The following questions should be addressed as part of the social and economic analysis:

- a. Is the development feasible if no degradation is allowed?
- b. What investments have been made by federal, state, and local government in developing area wide waste treatment systems?
- c. Is there a coastal restoration or diversion project in the area?
- d. How is local industry affected?
- e. How are number and types of jobs affected?
- f. How is tax revenue affected?
- g. What is the impact on recreation and tourism?
- h. What is the impact on human health?
- i. Should assimilative capacity be protected for future development?

### **Interagency Review and Public Participation**

The Tier 2 Review process includes a public review process and interagency coordination, where appropriate. Public participation in the Tier 2 Review process will be integrated into the existing comment, hearing, and notification procedures of the permit process. The Tier 2 Review will be made part of and subject to the same public participation and interagency review as a draft permit. If a Tier 2

Review is conducted, the public notice for the draft permit shall state, "During preparation of this permit, a Tier 2 antidegradation review was conducted. That review resulted in a finding that allowing lower water quality is/is not necessary to accommodate important economic or social development in the area in which the discharge is located."

Once the Department has reviewed the final information related to Tier 2 Review, the Department will document how the factors in the Tier 2 Review were considered in light of the changes to water quality. If it has been demonstrated that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the discharge is located, the Department will prepare the application for processing under the appropriate permit coverage. The Department will demonstrate its Tier 2 review findings in the fact sheet or statement of basis.

### **De Minimus Activities**

The Department will exempt activities determined to be *de minimus* from Tier 2 review. Exemptions for *de minimus* activities provide a means for LDEQ to differentiate between an activity that will result in an increased loading of a pollutant likely to have a significant impact on water quality and an activity that is unlikely to impact water quality. Distinguishing between these two types of activities allows the Department to focus resources on activities that will degrade water quality while still effectively regulating those determined not to impact water quality.

The use of a *de minimus* classification helps reduce permit processing time and overall costs to the Department, the general public and dischargers with no adverse impact on water quality. The establishment of *de minimus* discharges is also consistent with the Department's mission to provide service to the people of Louisiana through comprehensive environmental protection in order to promote and protect health, safety and welfare while considering sound policies regarding employment and economic development, and EPA guidance, which allows exceptions for activities that will not cause a statistically significant degradation to water quality at the ninety percent confidence interval.

The Department will make *de minimus* determinations on a case by case basis. Each *de minimus* discharge is analyzed and categorized based on the type and



volume of the discharge and the specific characteristics of the receiving stream, resulting in situations where the same discharge may be considered *de minimus* when going to one receiving stream and not going to another.

To make a determination of *de minimus* status, the Department may consider the discharge's effect on both individual and cumulative assimilative capacity. An increase in discharge of a parameter for an individual discharger that is 10% or less than the available assimilative capacity for that parameter in the reach of the water body of concern shall be considered *de minimus*. A reach is defined as a listed water body in LAC 33:IX.1123.Table 3. A cumulative capacity cap of 10% or less than the available assimilative capacity for the parameter in question shall be established for each reach of each water body for all individual dischargers located along that reach. Compliance with permits that require best management practices (BMPs) and stormwater pollution prevention plans (SWPPPs) assure that low pollutant and/or low volume general permit approved discharges will not cause significant impacts on receiving water bodies.

### **De Minimus Determination Example**

The following example is based on the sample problem presented in Appendix D of the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, Water Quality Management Plan Volume 3 (Sample Problem). Details on the calculation of the total benzene assimilative capacity of the receiving stream and theoretical technology based limits are presented in the Sample Problem.

The total assimilative capacity and water quality based effluent limits for benzene in the receiving stream are as follows:

Assimilative Capacity, lbs/day	
Maximum 30-day Avg.:	1.136
Daily Maximum	2.704

The technology limits calculated in this example are as follows and were found to be more limiting than the water quality based effluent limits determined above and would be used in the permit.

Technology limit, lbs/day

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Maximum 30-day Avg.:	0.24
Daily Maximum	0.56

If the facility were undergoing an expansion, the allowable increase in effluent limitations that would be classified as *de minimus* would be as follows:

10% of the assimilative capacity for the Maximum 30-day Average = 1.136 lbs/day \* 0.1 = 0.11 lbs/day

This facility could increase the benzene limit up to an additional 0.11 lbs/day as a *de minimus* increase.

### Baseline Assimilative Capacity Calculation

\*\*\*\*\**To be developed*\*\*\*\*\*

### Additional De Minimus Classifications

Activities that will result in only a short-term degradation of water quality, as described in LAC 33:IX.1109.E, will be considered *de minimus*.

In addition to classifying a specific discharge as *de minimus* after considering the discharge's effect on both individual and cumulative assimilative capacity as explained above, the Department may classify certain types of discharges in certain water bodies or a group of water bodies as *de minimus* after full demonstration that the type and design capacity of the discharge will not cause significant degradation. As water body size and flow are a critical component of the assimilative capacity, *de minimus* classifications must be determined by either a stream order system (or comparable method) or on a water body-by-water body basis. These classifications may be based upon existing waste load allocation models, TMDLs, water body size and critical flow calculations.

### C. TIER 3

Tier 3 protection provides that where high quality waters constitute an outstanding National resource, such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance,

that water shall be maintained and protected. 40 CFR §131.12(a)(3). As a result, Tier 3 protection will be afforded to water bodies that are designated by LDEQ as "outstanding natural resource waters" (ONRW). Discharges proposed for an ONRW shall not be approved if the new or increased discharge will cause significant degradation, as defined in LAC 33:IX.1119.C.4.

However, this prohibition does not mean that all discharges are prohibited. In special circumstances, a discharge may be allowed if it does not cause significant degradation or causes only temporary and short-term changes in water quality that do not impair existing uses or if the activity is intended to implement the §101(a) objectives of the CWA. Short-term activities are described as activities that occur from one day to a few months. Such activities require the authorization of the administrative authority and are supported by LAC 33: IX.1109.E.

Nonpoint source pollution resulting from preexisting land-use activities and controlled by best management practices (BMPs) may be considered sources of degradation for surface water bodies designated as ONRWs.

#### IV. WATER QUALITY MONITORING

Water quality data is collected within the framework of LDEQ's Ambient Water Quality Monitoring Program. This data is evaluated to determine the support level for each designated use, which is reported in the biennial Integrated §303(d)/§305(b) Report (Integrated Report). Other data (quantitative or qualitative) may also be considered for the determination of support, such as health advisories, remediation projects, or quality data collected by other agencies or nonprofit groups. The parameters and period of record of the dataset used is described in the rationale for each report.

Ambient Water Quality Monitoring data may also be used to develop new or revised water quality standards, establish trends, and establish the Tier level of a water body.

## V. NONPOINT SOURCE MANAGEMENT

### **Background**

A nonpoint source is a diffuse source of water pollution that does not discharge through a point source, but instead, flows freely across exposed natural or man-made surfaces such as agricultural or urban runoff and runoff from construction, mining, or silviculture activities that are not regulated as point sources. LAC 33:IX.107.

Some activities that have traditionally been considered nonpoint sources have, in recent years, been incorporated under federal regulation into the NPDES program as regulated point source discharges. This includes construction activities between one and five acres with a point source discharge, all construction activities disturbing greater than five acres, concentrated animal feeding operations (CAFOs) and other industrial stormwater discharges. New or increased discharges from designated point sources will be subject to antidegradation requirements.

The pollutants that arise from precipitation induced sources are as varied and numerous as the sources themselves and can have significant impacts on water quality. To minimize these impacts, Louisiana's Antidegradation Policy recommends and encourages the implementation of BMPs for nonpoint sources. Statewide educational programs exist for the several types of nonpoint sources, such as agriculture, forestry, construction, and urban runoff. The educational and BMP programs are described in LDEQ's Nonpoint Source Management Plan.

### **Watershed Protection Programs**

In addition to the statewide education and BMP programs for the categories of land-uses that contribute to nonpoint source pollution in Louisiana, there are also watershed specific programs that focus on the 303(d) listed water bodies that have had TMDLs developed. After the TMDLs have been developed, a watershed implementation plan is written which describes how the nonpoint source component of the TMDL can be addressed through targeted BMP

implementation. Watershed programs involve many partners and activities that are all focused on the specific types of water quality problems that are causing the water body to not meet its designated uses. Through the collaborative efforts of federal, state, local agencies and nonprofit organizations, educational programs, cost-share assistance programs and targeted monitoring programs are all implemented in an effort to restore that water body and remove it from the 303(d) list.

## VI. SECTION 401 CERTIFICATIONS

An applicant seeking a Federal license or permit for an activity involving a discharge of fill material into navigable waters is required to obtain a certificate from the state affected by the activity. See CWA § 401. The certificate, issued by LDEQ, states that the activity to be permitted will not violate Louisiana's water quality standards. The certificate is commonly referred to as a water quality certification (WQC).

In considering an application for a water quality certification, the Department will identify all potential impacts on the receiving water body, including wastewater discharges, construction and stormwater runoff. Compliance with the antidegradation policy will be based upon a review of:

1. The subsegment in which the receiving or adjacent water body(ies) lies
2. Applicable designated uses and criteria
3. Degree of support based upon the most current Integrated Report
4. Tier designation
5. Treatment design and BMPs that may be utilized

The determination of whether placement of fill material into surface waters will result in significant degradation will be described in the Rationale for Decision. The Water Quality Certification may require implementation of specific BMPs, mitigation, or monitoring of specific water quality parameters to ensure compliance with the Water Quality Standards. Federal and state public participation requirements will be met.

## VII. WATER QUALITY ENFORCEMENT ACTIVITIES

Enforcement activities of the Department help eliminate or ameliorate water quality degradation caused by both permitted and unpermitted discharges.

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Enforcement actions are directed at dischargers found to be in violation of the Water Control Law or effluent limits detailed in a wastewater permit. Inspection efforts including watershed based surveys of dischargers will identify facilities discharging without a permit or in contravention of a permit and will be referred to the Enforcement Division for appropriate action. All facilities requesting permit renewals will have compliance evaluations. All violations will be documented and any facility found in significant non-compliance will be referred to the Enforcement Division for appropriate action. Appropriate enforcement action may include, but not be limited to, issuance of Compliance Orders containing compliance schedules and issuance of civil penalties for the violations and or failure to timely correct any and all noted deficiencies.

## REFERENCES

Environmental Protection Agency. 1993. *Antidegradation Implementation: Requirements, Options, and EPA Recommendations Pertaining to State/Tribal Antidegradation Programs*. Region VIII. Denver, CO.

Louisiana Department of Environmental Quality. 2007 *Quality Assurance Project Plan for the Ambient Water Quality Network*. Office of Environmental Assessment and Office of Environmental Compliance. Baton Rouge, LA

Louisiana Department of Environmental Quality. 2008. *Development of Dissolved Oxygen (DO) Criteria and Assessment Protocols to Support Fish and Wildlife Propagation in Louisiana Waters Based on Ecological Regions (Ecoregions) and Water Body Types*. Office of Environmental Assessment, Water Quality Assessment Division. Baton Rouge, LA.

## APPENDIX A

### EXAMPLE AMBIENT CONDITION CALCULATION

**Table 1: Maximum-based Criteria**

<i>Parameter</i>	<i>Criterion</i>	<i>90th Percentile of Available Data</i>	<i>P90 &lt; Criterion</i>
Chlorides	65	45	Yes
Sulfates	50	15	Yes
TDS	400	200	Yes
Turbidity	50	20	Yes
Temperature	32	26	Yes
Bacteria (for PCR)*	400	200	Yes
Bacteria (for SCR)	2000	460	Yes

**Table 2: Minimum-based Criteria**

<i>Parameter</i>	<i>Criterion</i>	<i>10th Percentile of Available Data</i>	<i>P10 &gt; Criterion</i>
Dissolved Oxygen	5	6.2	Yes



**APPENDIX B****PROPOSED LIST OF TIER 2 WATERBODIES****Table 1: Tier 2 Water Bodies Qualifying Based Upon Data Analysis**

<b>SUBSEGMENT</b>	<b>SUBSEGMENT DESCRIPTION</b>
LA020906_00	Bay Rambo (Estuarine)
LA020907_00	Bay Sanbois, Lake Judge Perez, and Bay De La Cheniere
LA020907_00	Bay Sanbois, Lake Judge Perez, and Bay De La Cheniere
LA021101_00	Barataria Bay, includes Caminada Bay, Hackberry Bay, Bay Batiste, and Bay Long (Estuarine)
LA021101_00	Barataria Bay, includes Caminada Bay, Hackberry Bay, Bay Batiste, and Bay Long (Estuarine)
LA021102_00	Barataria Basin Coastal Bays and Gulf Waters to the State 3 mile limit
LA030304_00	Moss Lake (Estuarine)
LA030403_00	Black Lake (Estuarine)
LA031201_00	Calcasieu River Coastal Bays and Gulf Waters to the state 3 mile limit
LA040911_00	Grand Lagoon; includes associated canals (estuarine)
LA041001_00	Lake Pontchartrain - West of US-11 bridge
LA041002_00	Lake Pontchartrain - East of US-11 bridge
LA041701_00	The Rigolets (Estuarine)
LA041702_00	Bayou Sauvage - From New Orleans hurricane protection levee to Chef Menteur Pass; includes Chef Menteur Pass
LA041704_00	Lake St. Catherine
LA042001_00	Lake Borgne
LA042201_00	Chandeleur Sound
LA042202_00	California Bay and Breton Sound
LA042203_00	Bay Boudreau
LA042204_00	Drum Bay
LA042205_00	Morgan Harbor
LA042206_00	Eloi Bay
LA042207_00	Lake Fortuna
LA050901_00	Mermentau River Basin Coastal Bays and Gulf Waters to the state 3 mile limit
LA061105_00	Marsh Island (Estuarine)
LA070202_00	Raccourci Old River
LA080202_00	Bayou Louis - From headwaters to Ouachita River
LA090103_00	East Pearl River - From Holmes Bayou to I-10 (Estuarine)
LA090203_00	Lower Bogue Chitto - From Pearl River Navigation Canal to Wilsons Slough
LA090208_00	Little Lake (Estuarine)
LA100405_00	Black Bayou - From headwaters to spillway at Black Bayou Reservoir (note: Drinking Water Source)
LA101102_00	Kisatchie Bayou - From headwaters to Kisatchie National Forest
LA101505_00	Larto Lake
LA101603_00	Lake St. John
LA101607_00	Bayou Cocodrie - From LA-15 to Little Cross Bayou
LA101607_00	Bayou Cocodrie - From LA-15 to Little Cross Bayou
LA110101_00	Toledo Bend - From Texas-Louisiana state line to Toledo Bend dam
LA110201_00	Sabine River - From Toledo Bend Dam to Old River below Sabine Island WMA

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LA110301_00	Sabine River - From Old River below Sabine Island WMA to Sabine Lake (Estuarine)
LA110302_00	Black Bayou - From Pirogue Ditch to Sabine Lake (Estuarine)
LA110503_00	Vernon Lake
LA110507_00	Bayou Anacoco - From Cypress Creek to Sabine River
LA110602_00	Black Bayou - From ICWW to Pirogue Ditch (Estuarine)
LA110701_00	Sabine River Basin Coastal Bays and Gulf Waters to the state 3 mile limit
LA120108_00	False River
LA120203_00	Bayou Boeuf - From Lake Palourde to ICWW (note: Drinking Water Source)
LA120402_00	Bayou Chene - From ICWW to Bayou Penchant
LA120404_00	Lake Penchant
LA120701_00	Bayou Grand Caillou - From Houma Navigation Canal to Caillou Bay (Estuarine)
LA120706_00	Bayou Blue - From Bully Camp Canal to Lake Raccourci (Estuarine)
LA120801_00	Caillou Bay
LA120802_00	Terrebonne Bay
LA120803_00	Timbalier Bay
LA120804_00	Lake Barre
LA120805_00	Lake Pelto
LA120806_00	Terrebonne Basin Coastal Bays and Gulf waters to the state 3 mile limit

**Table 2: Tier 2 Waters Based Upon Reference Water Body Status**

<b>SUBSEGMENT</b>	<b>DESCRIPTION (May Be a Portion of a Subsegment)</b>
LA020902_00	Little Lake (Estuarine)
Portion of LA030802_00	Hickory Creek – From headwaters to confluence with Greenhead Gully
Portion of LA030803_00	Beckwith Creek – From headwaters to confluence with Dry Creek
Portion of LA040101_00	Little Comite Creek - From Louisiana State Line to confluence with West Fork Comite Creek
Portion of LA040301	Darling Creek – From headwaters to confluence with Sandy Run
Portion of LA040501_00	Crittenden Creek – From headwaters to confluence with Little River
Portion of 050301_00	Bayou Nezpique – From headwaters to confluence with Grand Louis Bayou
Portion of LA060208_00	Loving Creek – From headwaters to confluence with Castor Creek
Portion of LA070502	West Fork Thompson's Creek – From headwaters to confluence with Sand Branch
Portion of LA080401_00	Chemin-a-Haut Creek – From headwaters to confluence with Bayou Bartholomew
Portion of LA080610_00	Meridian Creek – From headwaters to confluence with Bayou de Loutre
Portion of LA080901_00	Cross Bayou – From headwaters to confluence with Bayou Morengo
Portion of LA081201_00	Buckshot Bayou – From headwaters to confluence with Fool River
Portion of	Leading Bayou – From headwaters to confluence with Buckshot Bayou

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<b>LA081201_00</b>	
<b>Portion of LA081201_00</b>	Big Roaring Bayou – From Big Lake to confluence with Tensas River
<b>Portion of LA081503_00</b>	Beaucoup Creek – From Caney Creek to confluence with Cypress Creek
<b>Portion of LA090401_00</b>	Bogue Lusa Creek – From headwaters to confluence with Miller Branch
<b>Portion of LA100309_00</b>	Cross Bayou – From Texas state line to Cross Lake
<b>Portion of LA101103_00</b>	Little Kisatchie Bayou – From headwaters to confluence with Kisatchie Bayou
<b>Portion of LA101103_00</b>	Little Bayou Pierre – From headwaters to confluence with Kisatchie Bayou
<b>Portion of LA101501_00</b>	Big Saline Bayou – From headwaters in Saline State WMA to confluence with North Fork
<b>Portion of LA101501_00</b>	Indian Bayou – From headwaters to North Fork
<b>Portion of LA101501_00</b>	Duck Slough – From headwaters to North Fork
<b>Portion of LA101502_00</b>	Muddy Bayou – From Catahoula Lake Diversion Canal to Saline Lake
<b>Portion of LA101502_00</b>	John's Bayou – From headwaters to Muddy Bayou
<b>Portion of LA110201_00</b>	Forker Creek – From headwaters to confluence with Pearl Creek
<b>LA110506_00</b>	Bayou Anacoco – From Anacoco Lake to Cypress Creek
<b>Portion of LA120107_00</b>	Pat Bay
<b>LA120107_00</b>	Upper Grand River and Lower Flat River
<b>Portion of LA120201_00</b>	Bay Natchez
<b>LA120204</b>	Lake Verret and Grassy Lake
<b>LA120205_00</b>	Lake Palourde
<b>LA120206_00</b>	Grand Bayou
<b>Portion of LA120403_00</b>	Bayou Copasaw – Cocodrie Lake to confluence with Bayou Penchant
<b>LA120404_00</b>	Lake Penchant
<b>Portion of LA120703</b>	Lake Mechant

**APPENDIX C**

**EXAMPLE TIER 2 REVIEW**

\*\*\*\*\*To Be Developed\*\*\*\*\*